

CLAIM AMENDMENTS

1. (Currently amended) A system for accomplishing localized feature forming or localized joining in one or more sheets of material, comprising:

a die having a cavity for imparting a shaped feature to said one or more sheets of material;

a projectile firing device in substantial alignment with said cavity, said projectile firing device for propelling a projectile into said one or more sheets of material;

a projectile adapted to be propelled from said projectile firing device into said one or more sheets of material, said projectile for forcing at least a portion of said one or more sheets of material into said cavity to impart said shape thereto, wherein said projectile is not in physical contact with said projectile firing device as said projectile forces at least a portion of one or more sheets of material into said cavity.

2. (Original) The system of claim 1, wherein said one or more sheets of material are metallic.

3. (Original) The system of claim 1, wherein said projectile is deformable.

4. (Original) The system of claim 1, wherein said projectile is comprised of a metallic material.

5. (Withdrawn) The system of claim 1, wherein said projectile is comprised of plastic.

6. (Withdrawn) The system of claim 1, wherein said projectile is comprised of a liquid.

7. (Withdrawn) The system of claim 1, wherein said projectile is comprised of ice.

8. (Original) The system of claim 1, wherein said projectile is of substantially the same shape as said cavity.

9. (Withdrawn) The system of claim 1, wherein said projectile firing device employs compressed gas to propel said projectile.

10. (Original) The system of claim 1, wherein said projectile firing device employs an explosive charge to propel said projectile.

11. (Withdrawn) The system of claim 1, wherein said projectile firing device employs an electrical charge to propel said projectile.

12. (Original) The system of claim 1, further comprising an enclosure that encapsulates at least a portion of said projectile firing device and said area of said one or more sheets of material that will be impacted by said projectile.

13. (Original) The system of claim 1, further comprising a means for securing the position of said one or more sheets of material during the impact of said projectile.

14. (Withdrawn) The system of claim 13, wherein said securing means is a vacuum.

15. (Original) The system of claim 13, wherein said securing means is magnetic.

16. (Original) The system of claim 1, wherein multiple sheets of material are used.

17. (Original) The system of claim 16, wherein said multiple sheets are joined via an interlocking shape produced by the forcing at least a portion of said multiple sheets of material into said cavity by said projectile.

18. (Original) The system of claim 16, wherein said multiple sheets are joined via a metallurgical bond produced therebetween by the forcing at least a portion of said multiple sheets of material into said cavity by said projectile.

19. (Original) The system of claim 16, wherein said multiple sheets are joined via both an interlocking shape and a metallurgical bond produced therebetween by the forcing of at least a portion of said multiple sheets of material into said cavity by said projectile.

20. (Original) The system of claim 1, wherein the velocity of said projectile is between about 50 and about 2,000 feet per second at the time it contacts said one or more sheets of material.

21. (Original) The system of claim 1, further comprising a means for releasably securing a secondary component within said die cavity, said secondary component adapted for attachment to said one or more sheets of material by the impact of said projectile.

Claims 22 - 45 (cancelled)

46. (Currently amended) A system for accomplishing localized feature forming in a metallic sheet, comprising:

1 a die having a cavity for imparting a shaped feature to said metallic sheet, said die adapted to reside near said metallic sheet such that said cavity lies subjacent thereto;

a projectile firing device in substantial alignment with said cavity, said projectile firing device for propelling a projectile at a high velocity into said metallic sheet; and

a deformable projectile adapted to be propelled from said projectile firing device into said metallic sheet at a point that is in substantial alignment with said subjacent cavity, said deformable projectile for forcing at least a portion of said metallic sheet into said cavity to impart said shape thereto, wherein said deformable projectile is not in physical contact with said projectile firing device as said deformable projectile forces at least a portion of said metallic sheet into said cavity.

47. (Original) The system of claim 46, wherein said deformable projectile is comprised of a metallic material.

48. (Withdrawn) The system of claim 46, wherein said deformable projectile is comprised of plastic.

49. (Withdrawn) The system of claim 46, wherein said deformable projectile is comprised of a liquid.

50. (Withdrawn) The system of claim 46, wherein said deformable projectile is comprised of ice.

51. (Original) The system of claim 46, wherein said projectile is of substantially the same shape as said cavity.

52. (Original) The system of claim 46, further comprising a means for securing the position of said one or more metallic sheets during the impact of said deformable projectile.

53. (Withdrawn) The system of claim 52, wherein said securing means is a vacuum.

54. (Original) The system of claim 52, wherein said securing means is magnetic.

55. (Withdrawn) A system for accomplishing the localized joining of multiple metallic sheets, comprising:

a die having a cavity for creating an interlocking joint in said metallic sheets, said die adapted to reside near said metallic sheets such that said cavity lies subjacent thereto;

a projectile firing device in substantial alignment with said cavity, said projectile firing device for propelling a deformable projectile at a high velocity into said metallic sheets; and

DI a deformable projectile adapted to be propelled from said projectile firing device into said metallic sheets at a point that is in substantial alignment with said subjacent cavity, said deformable projectile for forcing at least a portion of said metallic sheets into said cavity to form said interlocking joint therein.

56. (Withdrawn) The system of claim 55, wherein said deformable projectile is comprised of a metallic material.

57. (Withdrawn) The system of claim 55, wherein said deformable projectile is comprised of plastic.

58. (Withdrawn) The system of claim 55, wherein said deformable projectile is comprised of a liquid.

59. (Withdrawn) The system of claim 55, wherein said deformable projectile is comprised of ice.

60. (Withdrawn) The system of claim 55, further comprising a means for securing the position of said metallic sheets during the impact of said deformable projectile.

61. (Withdrawn) The system of claim 60, wherein said securing means is a vacuum.

62. (Withdrawn) The system of claim 60, wherein said securing means is magnetic.

63. (Withdrawn) The system of claim 55, wherein said projectile firing device propels said deformable projectile at a velocity sufficient to cause a metallurgical bond between a portion of the metallic sheets in said joint.

64. (Withdrawn) The system of claim 55, wherein said joint has a reentrant shape.

65. (Withdrawn) A system for accomplishing the localized joining of multiple metallic sheets, comprising:

a die having a cavity for imparting a shaped feature to said metallic sheets, said die adapted to reside near said metallic sheets such that said cavity lies subjacent thereto;

a deformable projectile adapted to be propelled from a projectile firing device into said metallic sheets at a point that is in substantial alignment with said subjacent cavity, said deformable projectile for forcing at least a portion of said metallic sheets into said cavity to impart said shape thereto; and

a projectile firing device in substantial alignment with said cavity, said projectile firing device adapted to propel said deformable projectile into said metallic sheets at a velocity sufficient to cause the plastic deformation and subsequent metallurgical bonding of a portion of said metallic sheets located in said joint.

66. (Withdrawn) The system of claim 65, wherein said deformable projectile is comprised of a metallic material.

67. (Withdrawn) The system of claim 65, wherein said deformable projectile is comprised of plastic.

68. (Withdrawn) The system of claim 65, wherein said deformable projectile is comprised of a liquid.

69. (Withdrawn) The system of claim 65, wherein said deformable projectile is comprised of ice.

70. (Withdrawn) The system of claim 65, further comprising a means for securing the position of said metallic sheets during the impact of said deformable projectile.

71. (Withdrawn) The system of claim 70, wherein said securing means is a vacuum.

72. (Withdrawn) The system of claim 70, wherein said securing means is magnetic.

Claims 73 - 87 (cancelled)

88. (Withdrawn) The system of claim 13, wherein said securing means is mechanical.

89. (Withdrawn) The system of claim 52, wherein said securing means is mechanical.

90. (Withdrawn) The system of claim 60, wherein said securing means is mechanical.

91. (Withdrawn) The system of claim 70, wherein said securing means is mechanical.
